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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/773,989
Filing Date: February 06, 2004
Appellant(s): BARR ET AL.

John Piskorski
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3/30/2009 appealing from the Office action mailed 12/5/2008.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2002/0064728 A1	Weed et al.	5-2002
5,112,721	Kuchta et al.	5-1992
6,547,397 B1	Kaufman et al.	4-2003
6,618,174 B2	Parker et al.	9-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weed et al., U.S. Patent Publication No. 2002/0064728 A1 in view of Kuchta, U.S. Patent No. 5,112,721 in view of Kaufman, U.S. Patent No. 6,547,397 B1 and further in view of Applicant's admission.

Weed teaches a process of making an imaging composition comprising applying a photoimageable composition to a substrate and imagewise exposing the composition to actinic radiation (page 7, [0099]). The photoimageable composition comprises photosensitizing dyes that undergo color change upon irradiation (Weed, [page 7, 0099]). By applicant's own admission on page 6 of the specification, the laser power is conventionally 5mW or less. In addition, the photoimageable composition is combined with other components such as a quinone redox couple comprising 9,10-phenanthrenequinone and an acyl ester of triethanolamine (page 6, [0090]). The combination of these components forms an effective color forming composition when exposed to radiation. The difference between the reference and the instant application is that Weed does not teach that the photoimaging composition comprises a

cyclopentanone based conjugated photosensitizer nor that a 3D image is projected onto the photoimaging composition with a laser.

However, Kuchta, in analogous art, teaches a cyclopentanone based conjugated sensitizer used in imaging compositions. Sensitizers are known as dyes and provide color in imaging compositions and facilitate the photoinitiation process (See Kuchta, column 1, lines 17-30). In column 6, lines 5-19, Kuchta specifically teaches cyclopentanone based conjugated sensitizers in the imaging composition. Weed teaches the use of several different types of dyes suitable for the invention including dyes, which can undergo a change in color upon irradiation. Kuchta's compounds fit this description. It would have been obvious to one of ordinary skill in the art to use the compounds of Kuchta in the method of Weed because Weed's process requires dyes, which are radiation sensitive, and undergo color change with laser irradiation.

Further, Kaufman teaches a laser projector for projecting a 3D image onto an object (see abstract). Kaufman teaches figures 1 and 8 as a laser projector and range finder, respectively. Applicant also discloses figures 1 and 2 of the invention as a laser projector and range finder. Kaufman teaches that the 3D imaging system is used to accurately identify where to place the 3D image on the workpiece (col. 1, lines 33-51). Therefore, it is expected that the 3D image would be selectively placed on the imaging composition by using a laser projector with a range finder. Therefore, it would have been obvious to one of ordinary skill in the art to use the 3D imaging system of Kaufman on the imaging composition of Weed to accurately position the 3D image onto the imaging composition.

Claims 5-7, 10, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaufman, U.S. Patent No. 6,547,397 B1 in view of Parker et al., U.S. Patent No. 6,618,174 B2 in view of Weed et al., U.S. Patent Publication No. 2002/0064728 A1 in view of Kuchta, U.S. Patent No. 5,112,721 and further in view of Applicant's admission.

Kaufmann teaches a 3-D imaging system, measuring the distance between the projector and a sensor in the workpiece, positioning the workpiece and applying energy to the imaging composition. Figure 1 of Kaufman is the same as figure 1 of the application. The range finding system determines the distance between the projector and a sensor as described in column 8. The optical signal is converted to a digital signal and analyzed by the controller module, element 210, which is the same as applying an algorithm to the results (col. 8, lines 65-67 and col. 9, lines 1-30). As shown in Figure 1, Kaufman teaches the energy beams from the projector fall on sensors and on an internal triangular shape of the workpiece which is not identified in Figure 1. However, because the energy beams fall on this area, it would have been obvious to one of ordinary skill in the art that this is the area to be imaged and must have an imaging composition thereon. Kaufman does not teach a step of removing unwanted portions of the imaging composition from the workpiece. None the less, it would have been obvious to one of ordinary skill in the art to remove unwanted portions because the imaging composition comprises a plastic film and therefore would easily perforate to remove unwanted portions. Kaufman does not teach applying an imaging composition to a workpiece and applying the 3D imaging composition having a cyclopentanone based compound with an

amount of energy to affect color change. Further, Kaufman does not specifically teach drilling holes at the indicators for joining fasteners to the workpiece.

However, Parker teaches a method of making a pattern on a workpiece. The pattern may be a three dimensional holographic pattern (col. 2, lines 37-45). The method comprises drilling holes into the workpiece by photoablation to form apertures (col. 8, lines 33-39). It would have been obvious to one of ordinary skill in the art to drill holes in the workpiece of Kaufman with a laser because Parker teaches laser ablating the workpiece to form apertures in thin membranes. The apertures in thin membranes are representative of placing holes in the workpiece, by which fasteners can be applied.

Weed teaches a process of making an imaging composition comprising applying a photoimageable composition to a substrate and imagewise exposing the composition to actinic radiation (page 7, [0099]). The photoimageable composition comprises photosensitizing dyes that undergo color change upon irradiation (Weed, [page 7, 0099]). By applicant's own admission on page 6 of the specification, the laser power is conventionally 5mW or less. In addition, the photoimageable composition is combined with other components such as a quinone redox couple comprising 9,10-phenanthrenequinone and an acyl ester of triethanolamine (page 6, [0090]). The combination of these components forms an effective color forming composition when exposed to radiation. It would have been obvious to one of ordinary skill in the art to use the photoimageable process of Weed in the method of Kaufman because Weed teaches the imaging process while Kaufmann outlines the manner in which the process is used in the laser system for projecting a 3D image. The amounts of power the system projects

and the amount of energy are at conventional levels. The amount of energy is directly related to the amount of power used by the projection system and so can be optimized.

Kuchta, in analogous art, teaches cyclopentanone based photosensitizers in a photopolymerizable composition (see Kuchta, col. 5, line 66). It would have been obvious to one of ordinary skill in the art to use the cyclopentanone based conjugated sensitizer of Kuchta in the process of Weed because Weed's process requires a radiation-sensitive compound, which affects color change upon increase in temperature.

(10) Response to Argument

Appellant argues that Weed teaches near infrared sensitizers while Kuchta teaches sensitizers in the visible wavelength range. Further, that substituting the cyclopentanones of Kuchta for the IR sensitizers of Weed would render the composition of Weed inoperable.

Appellant is directed to page 6, [0090] of Weed wherein Weed teaches a redox couple comprising 9,10-phenanthrenequinone as the oxidizer and which absorbs in the range of 430 to 550nm. The reducing compound is an acyl ester of triethanolamine. Although the 9,10-phenanthrenequinone may not be a cyclopentanone, the 9,10-phenanthrenequinone still absorbs in the visible spectrum. Therefore, Weed teaches near infrared and visible light absorbing sensitizers.

Appellant argues that Kaufman does not teach the desirability of modifying the method of Kaufman to include a photoimageable composition on the contoured surface.

Kaufman teaches a process that is used in a laser system for projecting a 3D image while Weed teaches a process of making an imaging composition. The method of

Weed comprises applying a photoimageable composition to a substrate and imagewise exposing the composition to actinic radiation (page 7, [0099]). The photoimageable composition comprises photosensitizing dyes that undergo color change upon irradiation (Weed, [page 7, 0099]). The photoimageable composition of Weed comprises other components such as a quinone redox couple comprising 9,10-phenanthrenequinone (oxidizer) and an acyl ester of triethanolamine (reducer) (page 6, [0090]). The combination of these components forms an effective color forming composition when exposed to radiation. It would have been obvious to use the photoimageable process of Weed in the method of Kaufman because Weed teaches the imaging process while Kaufmann outlines the manner in which the process is used in the laser system for projecting a 3D image.

Appellant argues that Kaufman does not teach an imaging composition to determine the distance from the laser source and the contoured surface.

Weed is used to teach an imaging composition while Kaufman is relied upon for the laser system. Although Kaufman may not teach an imaging composition, one of ordinary skill in the art would modify the Kaufman reference to include the imaging composition of Weed because Kaufman teaches a laser system for imaging composition while Weed teaches the imaging composition.

Appellant argues that Kaufman does not teach or suggest projecting a 3-D image with a laser on any type of imaging composition.

Kaufman teaches laser projection of a 3-D image on an object (abstract).

Appellant argues there is no desirability to modify Kaufman by applying an imaging composition on the contoured surface of a substrate.

Kaufman teaches laser projection of a 3-D image to the imaging composition in Weed. Weed is used to show an image applied to an imaging composition while Kaufman teaches the laser projector for positioning and applying the imaging composition to a workpiece (see Kaufman abstract).

Appellant argues that figure 1 of Kaufman does not teach an imaging composition on a substrate.

Kaufman teaches figures 1 and 8 are a laser projector and range finder, respectively. Kaufman may not specifically teach figure 1 as being used to apply an image to an imaging composition, however Kaufman teaches the same apparatus as figure 1 of the invention and discloses that figure 1 is a laser projector. Therefore, figure 1 of Kaufman (laser projector) is capable of applying a 3D image to an imaging composition in Weed. Applicant also discloses that figures 1 and 2 of the invention are a laser projector and range finder, respectively. Figure 1 of Kaufman is the same as figure 1 of applicants' present specification. Figure 1 of Kaufman discloses energy beams from the projector fall on sensors and on an internal triangular shape of the workpiece which is not identified in Figure 1. However, because the energy beams fall on this area, it would have been obvious that this is the area to be imaged and must have an imaging composition thereon. Weed, in analogous art is used to show an imaging composition formed by the method of Kaufman.

Appellant argues that Weed is directed to a photoimageable composition comprising near infrared sensitizers while Kuchta is directed to sensitizers which are sensitive in the visible spectrum. Appellant further argues that the combination of Weed and Kuchta is improper because it would require a substantial reconstruction and redesign of the elements shown in Weed.

Appellant is directed to page 6, [0090] of Weed wherein Weed teaches a redox couple comprising 9,10-phenanthrenequinone as the oxidizer and which absorbs in the range of 430 to 550nm. The reducing compound is an acyl ester of triethanolamine. Although the 9,10-phenanthrenequinone may not be a cyclopentanone, the 9,10-phenanthrenequinone still absorbs in the visible spectrum. Weed teaches near infrared and visible light absorbing sensitizers. Therefore, the combination of Weed and Kuchta is proper.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Connie P. Johnson/

Examiner, Art Unit 1795

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795

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